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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/761,985 | 01/21/2004 | Ming-Cheng Chang | 10113681 | 4317 |

34283 7590 11/02/2005

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| EXAMINER |
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TRAN, THIEN F

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| ART UNIT | PAPER NUMBER |
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2811

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,985

Applicant(s)

CHANG ET AL.

Examiner

Thien F. Tran

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AN

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gate conductive line portion and the word line portion must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The amendment filed 08/16/2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: each conductive line comprises a gate conductive line portion and a word line portion. These features are not expressly disclosed and defined anywhere in the disclosure as original filed. The original disclosure lacked some standard for determining and understanding what applicant intended to cover. It is clear that the specification do not meet the written description requirement under 35 USC 112, first paragraph that it has to clearly convey the information that an applicant has invented the subject matter which is now claimed. Again, there is no support for the features mentioned above in the specification as original filed and Figure 3 also fails to provide support for the new claimed language. Applicant is requested to point out exactly where on page 3 and in Fig. 3 of the application that teach or show a gate conductive line portion and a word line portion .

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 8 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation of a gate conductive line portion and a word line portion sets forth a structure not supported by the disclosure. The disclosure does not provide a description of a conductive line comprising a gate conductive line portion and a word line portion as claimed. Applicant is requested to show exactly where on page 3 and in Fig. 3 that provides support for the new claimed language that defines a feature that is patentable distinguished from the structure of Clevenger et al.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Clevenger et al. (US 6,399,447).

Clevenger et al. disclose a dynamic random access memory cell layout (Figures 1 and 2), comprising: a first conductor line pair and a second conductor line pair extending along a first direction (see Figure 2), in which each conductor line pair comprises a first conductive line and a second gate conductive line, and in which each conductive line comprises a gate conductive line portion 106 and a word line portion (102, 103) ; a bitline pair extending along a second direction and intersecting the gate conductor pairs, in which the bitline pair comprises a first bitline 101 and a second

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bitline 101; a first active area extending along the second direction, crossing the first conductor line pair 102 and corresponding to the first bitline 101; and a second active area extending along the second direction, crossing the second conductor line pair 103 and corresponding to the second bitline; wherein, each active area comprises: a first deep trench DT and a second deep trench DT formed in a substrate underneath the first conductive line and second conductive line 102, respectively; a bitline contact CB (104) formed between the first conductive line and the second conductive line, in which the bitline contact is electrically connected to the corresponding bitline 101; a common source/drain region 112 formed in the substrate between the first conductive line and the second conductive line, in which the common source/drain region is electrically connected to the bitline contact; a first vertical transistor formed overlying the first deep trench, in which the first vertical transistor comprises a first buried strap out-diffusion region (n+) formed in the substrate adjacent to one sidewall of the first deep trench; and a second vertical transistor formed overlying the second deep trench, in which the second vertical transistor comprises a second buried strap out-diffusion region (n+) formed in the substrate adjacent to one sidewall of the second deep trench.

Regarding claim 2, the first deep trench is partially overlapped with the first vertical transistor, and the sidewall profile of the first deep trench on the overlapping portion is a line shape.

Regarding claim 3, the second deep trench is partially overlapped with the second vertical transistor, and the sidewall profile of the second deep trench on the overlapping portion is a line shape.

Regarding claim 8, the memory cell layout further comprises a first deep trench capacitor formed at the lower portion of the first deep trench.

Regarding claim 9, the memory cell layout further comprises a second deep trench capacitor formed at the lower portion of the second deep trench.

Response to Arguments

Applicant's arguments with respect to claims 1-3 and 8-9 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 08/16/2005 have been fully considered but they are not persuasive. Applicant argues that Clevenger et al. fail to teach a conductive line comprising two conductive line portions, a gate conductive line portion and a word line portion. The examiner respectfully disagrees with the remark because Clevenger et al. clearly disclose a conductive line comprising two conductive line portions, a gate conductive line portion 106 and a word line portion 102. On the other hand, it is the instant invention that does not disclose a conductive line comprising two conductive line portions, a gate conductive line portion and a word line portion.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien F. Tran whose telephone number is (571) 272-1665. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tt
October 30, 2005


THIENTRAN
PRIMARY EXAMINER